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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/518,889

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Anders Jirskog

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EXAMINER

BARKER, MATTHEWM

ART UNIT

PAPER NUMBER

3662

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/518,889

Applicant(s)

JIRSKOG, ANDERS

Examiner

MATTHEW M. BARKER

Art Unit

3662

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 November 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☒ Claim(s) 1, 5, 6, 11 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-8508)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

1. Claim 1 is objected to because of the following informalities: Line 5 of the claim should include the word --for-- between "unit" and "transmitting". Appropriate correction is required.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 1 and 11-12 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 9 of U.S. Patent No. 7,053,630 in view of Blom et al. (6,026,307) or Damgaard et al. (6,150,890).

Claim 9 of the Westerling patent includes the claimed radar module (claim 1), antenna unit (claim 5), measuring and controlling unit (claim 7), microwave generating source (claim 1) and switches (claim 9).

The Westerling patent does not claim a frequency multiplier. However, it is well known in the art to use a frequency multiplier to generate a second frequency from a first, as shown by Blom (Figure 1: 118), and Damgaard (Figure 6: 28). It would have been obvious to utilize a frequency multiplier in the circuit of Westerling claim 9 in order to avoid the need for numerous costly frequency generators.

4. Claims 5, 6, and 11 are objected to under 37 CFR 1.75 as being a substantial duplicate of claims 3, 4 and 1, respectively. Discussion of "series" or "cascade" coupling is not found in the specification, and the drawings show only one configuration (Figure 3). Given the drawing and lack of further explanation, "cascade coupled" and "coupled in series" are considered to describe the same configuration. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 112

5. Claims 15 and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claims 15 and 16 recite the broad recitation "at least greater than 1.5:1", and the claims also recite "and preferably greater than 2:1", which is the narrower statement of the range/limitation.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schultheiss (US 2002/0020216) in view of Blom et al. (6,026,307) or Damgaard et al. (6,150,890).

Regarding claims 1, 9, and 11, Schultheiss discloses a radar level gauge and method for measuring the level of a surface of a product by means of a radar level gauge, including a radar module for generating microwave signals on at least two different frequency bands (Figure 1; Abstract), an antenna unit (7/8; see final 3 lines of paragraph 0017) for transmitting and receiving microwave signals, a measuring and controlling unit for determining the level based on time lapsed between signals (3), a microwave generating source for providing a first microwave signal of a first frequency band (inherent, as frequency "f" must be generated), and switches (6) operated by means of a control signal (CLK) for switching the circuit to operate on a first or second frequency band (paragraph 0022).

Schultheiss does not specify how each transmit frequency is generated, and thus does not disclose a frequency multiplier coupled between the microwave generating source and antenna.

However, it is well known in the art to use a frequency multiplier to generate a second frequency from a first, as shown by Blom (Figure 1: 118), and Damgaard (Figure 6: 28). It would have been obvious to utilize a frequency multiplier in the circuit of Schultheiss in order to avoid the need for numerous costly frequency generators.

Regarding claims 2, 10, and 12-14, Schultheiss discloses the first switch, and that the choice of operating frequency is made by a control signal as discussed above. Schultheiss does not explicitly disclose mixers or second switches. However, Schultheiss does disclose that the receiver may consist of a number of receiver modules, one for each frequency. Inherently, a switch must exist to route the received

signal to the appropriate circuitry. While Schultheiss does not disclose the details of the receiver modules, it is standard practice in the art to mix a received signal with the transmitted signal provided by a power divider so as to extract information from the resulting IF signal. It would have been obvious, if not inherent to the system of Schultheiss to use mixers in order to achieve conventional advantages in the art with no new or unexpected results.

Regarding claims 3-6, neither Blom nor Damgaard disclose frequency multipliers coupled in series; however it is well known in the art that frequency multiplication may be performed over a number of multiplication stages in order to generate the desired frequency. It would have been obvious to one of ordinary skill in the art to use cascaded/ series multipliers, each multiplying the input by a constant to achieve conventional advantages in the art with no new or unexpected results.

Regarding claims 7 and 8, as discussed regarding claim 1, Schultheiss does not specify how the transmit frequencies are generated; however it is common practice in the art to utilize a VCO and PLL in the generation of a microwave signal. It would have been obvious, to use a VCO and PLL in the circuit of Schultheiss in order to achieve conventional advantages in the art such as producing stable frequencies with no new or unexpected results.

Regarding claims 15-16, Schultheiss does not specify that the ratio between the second and first frequencies is greater than 1.5:1. Indeed, Schultheiss is silent with respect to the ratios. However, it would have been obvious to one skilled in the art to set the ratio between the second and first frequencies to greater than 1.5:1, as the

reflected wave intensity can vary greatly depending of the frequency and substance being measured (paragraph 0003). Therefore, a wide range of frequencies (greater than 1.5 to 1) is needed to enable the device to accurately measure different substances.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The cited art relates to various distance or level measuring radar systems.

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Art Unit: 3662

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew M. Barker whose telephone number is (571)272-3103. The examiner can normally be reached on M-F, 8:30 AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Tarcza can be reached on (571)272-6979. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Matthew M Barker/
Examiner, Art Unit 3662

/Thomas H. Tarcza/

Supervisory Patent Examiner, Art Unit 3662